

THE COMMERCIAL KING CRAB FISHERIES IN THE  
ALEUTIAN ISLANDS MANAGEMENT AREAS

A REPORT TO THE ALASKA BOARD OF FISHERIES

By

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## ADAK BROWN KING CRAB

### *Description of Area*

Adak, Area R, has as its eastern boundary 171° West longitude, as its western boundary the U.S.-Russian Convention Line of 1867, and as its northern boundary 55°30' North latitude (Figure 1).

### *Historic Background*

The Adak brown king crab *Lithodes aequispina* fishery began during the 1975/76 season when one vessel made a single delivery containing this species. From the initial delivery through the 1980/81 season, brown king crab were caught incidental to red king crab in the Adak fishery. Catches of brown king crab were low during this period; most of the data are confidential (Table 1).

The fleet began to target on brown king crab during the 1981/82 season when 14 vessels made 76 landings totaling 1.2 million pounds (Table 1). When this fishery began, most of the catch came from the North Amlia and Petrel Bank Districts. The Western Aleutian District became a significant producer as well (Figure 2). The other three districts in Area R produce much lower catches due to the lack of large inter-island passes where brown king crab are most numerous. In July 1985, the minimum legal size was reduced from 6.5 to 6.0 inches in carapace width (Table 2).

### *1995/96 Fishery*

The 1995/96 Adak brown king crab fishery opened on November 1, concurrent with the red king and Tanner crab fisheries in that area. This fishery had no established guideline harvest level; it was managed to a historical harvest level of five to six million pounds. All vessels which participated in the fishery were required to maintain 100% observer coverage.

Eleven vessels, including one catcher-processor, obtained observers, registered and received tank inspections at the start of the 1995/96 fishery. Three additional vessels entered the fishery after the closure of the Bering Sea *C. bairdi* Tanner and Pribilof hair crab fisheries in mid to late November. The remaining vessels entered the fishery in March after the *C. opilio* fishery, or at a later date. No floater-processors participated in the fishery during the 1995/96 season.

A total of 25 vessels made 139 deliveries for a catch of 4.9 million pounds. This compares to the 1994/95 fishery when 34 vessels made 247 deliveries for 6.4 million pounds. The 1995/96 fishery was also below the recent average harvest level of approximately 5.3 million pounds from 1990/91 to the present (Table 1).

The average weight of crabs caught in the 1995/96 fishery was 4.3 pounds, larger than the average weight for the previous eight seasons. The average weight of crabs last year was 4.1 pounds. Catch per unit of effort (CPUE) in the 1995/96 fishery was five crabs per pot, the same

as for the 1994/95 fishery. The catch rate of five crabs per pot is the lowest recorded for the fishery (Table 1).

Fishery performance, in terms of total harvest, in the Adak brown king crab fishery was below the 1994/95 fishery, but was similar to the previous two fisheries in 1992/93 and 1993/94. The 1994/95 fishery had the highest number of deliveries in the last four years, while deliveries this year were comparable to the 1992/93 and 1993/94 seasons (Table 1). The highest number of deliveries and participating vessels occurred in April, however, the most pounds delivered in a month occurred in May (Table 3).

Average exvessel price per pound was \$2.10, well below the \$3.33 per pound during the 1994/95 fishery and less than the recent five year average of \$2.68 per pound. The total exvessel value of the fishery was \$9.5 million, the lowest in over 10 years (Table 4).

One catcher-processor participated for approximately 4.5 months during the 1995/96 fishery, compared to two catcher-processors during 1994/95 with a total of 12.5 months activity (Table 4). No floating processors were involved with the fishery this year, while two processed crab on the grounds during the 1994/95 season. The effort level of 25 vessels for this fishery was close to the recent average participation of 21 vessels, but well below the level of the 1994/95 season when 34 vessels participated.

Harvest occurred over the entire registration area from Amukta Island in the eastern portion of the registration area, to Stalemate Banks (west of Attu Island) in the West (Table 5). Approximately 48% of the harvest came from the passes in the area of Amukta and Segum Islands. Between the 1990/91 and 1994/95 seasons this area averaged 47% of the harvest. As in previous years, additional areas of fishing concentration were Amchitka and Tanaga Passes, and the offshore waters around Semisopochnoi and Buldir Islands.

The fishery closed by regulation on August 15, with a season length of 288 days (Table 4). The 1995/96 season was the last crab fishery for the Adak king crab registration area. Beginning September 1, 1996 the king crab registration areas previously known as Adak and Dutch Harbor will be combined to form the new Aleutian Islands king crab registration area.

### *Status of Stocks*

No population estimates are available for this area as a result of the lack of stock assessment surveys. Management of this fishery is managed based on size, sex and season. The recent average harvest of this fishery has been five to six million pounds.

Biological information has been collected through onboard fisheries observers required on all processing vessels in this area since 1988. However, the number of catcher-processors participating in this fishery has steadily declined. As a result of this reduction, and the corresponding decrease in biological information collected from this area, the Board of Fisheries implemented regulations requiring observers on all vessels beginning with the 1995/96 season. Information on the size, sex

and species composition of both the retained and non-retained catch will yield area-specific information to aid in the development of management strategies for the brown king crab fishery in this area.

## **ALEUTIAN ISLANDS BROWN KING CRAB**

### ***Description of Area***

The Aleutian Islands Registration Area O has as its eastern boundary the longitude of Scotch Cap Light ( $164^{\circ}44'$  West longitude), as its western boundary the U.S.- Russian Convention Line of 1867, and as its northern boundary a line the latitude of Cape Sarichef ( $54^{\circ}36'$  North latitude) from Unimak Island west to  $171^{\circ}$  West longitude, then north to  $55^{\circ}30'$  North latitude, and continuing west to the U.S.- Russian Convention Line of 1867 (Figure 3).

### ***Historic Background***

In March of 1996, the Alaska Board of Fisheries established the new Aleutian Islands king crab registration area by combining two existing areas, Dutch Harbor and Adak. The board action was in response to a petition by fisherman to move the existing line separating the two areas to the East. The intent of the petition was to move the Adak line east to include the Western District of the Dutch Harbor area. This would, essentially, put all of the productive brown king crab waters of the Aleutian Islands into the Adak registration area.

In response to the petition, the Alaska Department of Fish and Game favored moving the line west to  $174^{\circ}$  West longitude, noting the existing line divided the most abundant stock of brown king crab in the area between Scotch Cap Light and the U.S.- Russian Convention Line of 1867. This would allow the department to manage that population as a discrete stock. Historic catch data from Dutch Harbor and Adak indicates a majority of the harvest from these areas occurs between  $169^{\circ}$  and  $174^{\circ}$  West Longitude (Figure 4).

The board eliminated the existing line between the Dutch Harbor and Adak areas forming one registration area, Aleutian Islands, Area O. The board also eliminated district designations after testimony was presented by the department that districts were not currently used as a management tool.

The board, noting the distribution of crab in the new area, directed the department to manage the population east of  $174^{\circ}$  West longitude as a discrete stock of brown king crab. A conservative approach to the management of brown king crab in this area was stipulated by the board. Also, 100% observer coverage would be required in this fishery for the present time.

### *1996/97 Fishery*

The 1996/97 Aleutian Islands brown king crab fishery opened at 12:00 noon on September 1. The department established a guideline harvest level of 5.9 million for this new area. The harvest level was based on a conservative approach to the recent harvest levels observed in the Dutch Harbor and Adak brown king crab fisheries. A 3.2 million pound quota was set for the area east of 174° West longitude, and 2.7 million pounds was established for the western part of the registration area.

A total of 15 vessels obtained observers, registered and received tank inspections at the start of the fishery. Two vessels departed the area to participate in the St. Matthew Island king crab fishery after one delivery. Seventeen vessels participated during the month of October, after which six vessels departed for the Bristol Bay red king crab fishery and two for the Pribilof hair crab fishery. Only eight vessels participated in the Aleutian Islands brown king crab fishery continuously from September 1 to December 31, 1996.

Preliminary analysis of fish ticket data for the area east of 174° West longitude showed 15 vessels made 67 landings for 3.26 million pounds. The catch rate (CPUE) of was 7 crabs per pot pull; the average weight was 4.5 pounds per crab. For the entire registration area, 17 vessels made 92 landings for 4.1 million pounds during 1996. The catch rate (CPUE) was 7 crabs per pot pull; the average weight was 4.4 pounds per crab.

Harvest in the area east of 174° West longitude occurred predominantly from the area around Yunaska Island and the Islands of Four Mountains in what was previously the Dutch Harbor area. Additionally, Amukta and Seguam Passes were areas of additional fishing concentration.

Preliminary average exvessel price per pound was \$2.20 for an estimated fishery value of \$6.8 million for the area east of 174° West longitude. No estimates are available for the area to the west.

The eastern part of the Aleutian Islands east of 174° West longitude closed by emergency order December 25, 1996. The western part of the registration area remains open as approximately 65% of the 2.7 million pound quota remains unharvested.

### *Stock Status*

Aleutian Islands brown king crab stocks are not regularly surveyed, the last survey occurred in 1991. A portion of the Aleutian Islands area is scheduled to be surveyed in the summer of 1997. Information from this survey and that provided by observers will yield information necessary to more accurately assess and manage the Aleutian Islands brown king crab fishery.

## ALEUTIAN ISLANDS RED KING CRAB

### *Description of Area*

The Aleutian Islands Registration Area O has as its eastern boundary the longitude of Scotch Cap Light (164°44' West longitude), as its western boundary the U.S.- Russian Convention Line of 1867, and as its northern boundary a line the latitude of Cape Sarichef (54° 36' North latitude) from Unimak Island west to 171° West longitude, then north to 55°30' North latitude, and continuing west to the U.S.- Russian Convention Line of 1867 (Figure 3).

### *Historic Background*

In March of 1996, the Alaska Board of Fisheries established the new Aleutian Islands king crab registration area by combining two existing areas, Dutch Harbor and Adak. This action was in response to a petition regarding brown king crab. The department position on the petition was that their ability to manage red king crab in this area would not be adversely effected by action taken regarding brown king crab.

Historically, the Dutch Harbor red king crab *Paralithodes camtschatica* fishery began in 1961 and rapidly became a major production area. Harvest has fluctuated widely, reaching a peak during the 1966/67 season at 32.9 million pounds and then declining to 430 thousand pounds during the 1982/83 season. The fishery has remained closed since that season due to low stock abundance.

The Adak red king crab fishery also started in 1961, it peaked in the 1964/65 season at 21.2 million pounds. Harvest varied from almost 19 million pounds in 1972/73 to just over 400 thousand pounds in 1975/76. Harvest remained relatively stable at one to two million pounds from the 1980/81 to the 1992/93 seasons. The harvest declined from 700 thousand pounds in 1993/94 to 39 thousand pounds in 1995/96.

### *1996/97 Fishery*

The Aleutian Islands red king crab fishery was not opened for the 1996/97 season due to low stock abundance.

### *Stock Status*

The Alaska Department of Fish and Game conducted a trawl survey in 1995 covering part of the Aleutian Islands registration area corresponding to the eastern part of what was previously the Dutch Harbor area. The results of the survey indicated further stock reductions, as no red king crab were caught. Based on these results no recovery in this area is expected in the near future.



Red king crab stocks in the area west of 171° West longitude have not been surveyed since 1977. Compared to historical levels, the population is severely depressed. Preliminary analysis of observer data indicate there will be no commercial fishery for a minimum of three years.

Table 1. Adak, Area R, historic brown king crab catch statistics, 1975/76-1995/96.

Season	Number of		Crabs <sup>a</sup>	Harvest <sup>a,b</sup>	Pots Pulled	Average Weight <sup>b</sup>	CPUE <sup>c</sup>	Deadloss <sup>b</sup>
	Vessels	Landings						
1975/76				C O N F I D E N T I A L				
1976/77				C O N F I D E N T I A L				
1977/78				C O N F I D E N T I A L				
1978/79			N O	R E P O R T E D	C A T C H			
1979/80				C O N F I D E N T I A L				
1980/81	4	4	11,523	58,914	700	5.1	17	5,000
1981/82	14	76	217,700	1,194,046	24,627	5.5	9	22,064
1982/83	99	501	1,509,001	8,006,274	150,103	5.3	10	220,743
1983/84	157	1,002	1,534,909	8,128,029	226,798	5.3	7	171,021
1984/85	38	85	643,597	3,180,095	64,777	4.9	10	125,073
1985/86 <sup>d</sup>	49	386	2,052,048	11,124,759	202,401	4.5	12	5,304
1986/87	62	525	2,923,947	12,798,004	392,185	4.4	7	276,736
1987/88	46	386	1,908,989	8,001,177	267,705	4.2	7	165,415
1988/89	74	455	2,165,508	9,080,196	280,732	4.2	8	122,251
1989/90	64	505	2,520,786	10,162,400	324,153	4.0	8	100,724
1990/91 <sup>e</sup>	13	167	1,312,116	5,250,687	160,960	4.0	8	176,583
1991/92	16	206	1,511,751	6,254,409	192,949	4.1	8	96,848
1992/93	18	130	1,198,169	4,916,149	165,503	4.1	7	104,215
1993/94	21	147	1,393,742	4,635,683	212,164	4.2	6	165,358
1994/95	34	247	1,539,866	6,378,030	319,006	4.1	5	242,065
1995/96	25	139	1,133,270	4,896,911	226,463	4.1	5	338,223

<sup>a</sup>Deadloss included.<sup>b</sup>In pounds.<sup>c</sup>Defined as catch per pot pull.<sup>d</sup>Size limit reduced from 6.5 to 6 inches.<sup>e</sup>Partial closure August 7.

Table 2. Adak brown king crab harvest composition by fishing seasons, 1975/76-1995/96.

Season	Season		Harvest <sup>a,b</sup>	Percent New Shell	Average Length <sup>c</sup>	Minimum Size <sup>d</sup>
	Opened	Closed				
1975/76	11/01	12/18	CONFIDENTIAL	NA	NA	6.5
1976/77	01/07	04/15	CONFIDENTIAL	NA	NA	6.5
1977/78	02/20	03/20	CONFIDENTIAL	NA	NA	6.5
1978/79	02/21	10/01	0	NA	NA	6.5
1979/80	01/15	04/01	CONFIDENTIAL	NA	NA	6.5
1980/81	01/15	03/28	58,914	97.6	158.4	6.5
1981/82	11/01	06/15	1,194,046	90.5	159.6	6.5
1982/83	11/01	04/15	8,006,274	92.4	158.2	6.5
1983/84	11/10	04/15	8,128,029	87.8	NA	6.5
1984/85	11/10	07/08	3,180,095	87.5	156.7	6.5
1985/86	11/01	08/15	11,124,759	86.3	151.3	6.0
1986/87	11/01	08/15	12,798,004	69.1	149.5	6.0
1987/88	11/01	08/15	8,001,177	91.7	146.9	6.0
1988/89	11/01	08/15	9,080,196	91.2	149.1	6.0
1989/90	11/01	08/15	10,162,400	95.3	148.5	6.0
1990/91 <sup>e</sup>	11/01	08/15	5,250,687	91.5	144.5	6.0
1991/92	11/01	08/15	6,254,409	94.4	144.7	6.0
1992/93	11/01	08/15	4,916,149	93.5	147.0	6.0
1993/94	11/01	08/15	4,635,683	95.4	147.8	6.0
1994/95	11/01	08/15	6,378,030	92.9	149.5	6.0
1995/96	11/01	08/15	4,896,911	NA	NA	6.0

<sup>a</sup>Deadloss included.

<sup>b</sup>In pounds.

<sup>c</sup>Carapace length (millimeters).

<sup>d</sup>Carapace width (inches).

<sup>e</sup>Partial closure August 7.

Table 3. Adak brown king crab catch statistics by month, 1995/96.

Month	Number of			Harvest <sup>a,b</sup>	Pots Pulled	Average Weight <sup>b</sup>	CPUE <sup>c</sup>	Dead-loss <sup>b</sup>
	Vessels	Landings	Crabs					
Nov	11	19	158,895	668,834	28,427	4.2	5.3	44,650
Dec	8	12	82,178	339,986	12,393	4.1	6.4	16,491
Jan	4	5	46,055	190,772	5,354	4.1	8.2	8,416
Mar <sup>d</sup>	9	11	118,403	496,397	17,752	4.2	6.7	7,924
Apr	16	22	146,688	636,841	32,726	4.3	4.4	21,292
May	14	20	213,461	930,692	37,912	4.4	5.4	74,016
Jun	13	18	148,569	647,768	38,609	4.4	3.7	68,273
Jul	13	19	132,163	594,677	32,592	4.5	3.8	59,784
Aug	10	13	87,858	390,944	20,698	4.5	3.9	37,377
TOTAL	25	139	1,134,270	4,896,911	226,463	4.3	5.0	338,223

<sup>a</sup>Deadloss included.

<sup>b</sup>In pounds.

<sup>c</sup>Defined as catch per pot pull.

<sup>d</sup>February and March combined.

Table 5. Adak brown king crab catch by statistical area, preliminary results, 1995/96.

Statistical Area	Number of		Harvest <sup>a,b</sup>	Pots Pulled	Average Weight	CPUE <sup>c</sup>	Dead- loss <sup>b</sup>
	Landings	Crabs <sup>a</sup>					
715201	3	1,785	7,497	468	4.2	4	679
715202	30	190,849	824,824	25,180	4.3	8	22,509
715231	22	137,110	571,916	20,028	4.2	7	16,728
725201	38	159,236	676,455	25,850	4.2	6	68,173
725230	25	30,443	136,003	9,759	4.5	3	3,431
735130	6	976	4,650	495	4.8	2	501
735201	17	24,397	110,790	9,965	4.5	2	2,697
735230	5	33,700	143,301	10,991	4.3	3	3,282
745131	7	3,614	16,907	1,543	4.7	2	2,585
745206	7	2,510	13,460	869	5.4	3	1,290
755132	3	134	843	123	6.3	1	24
765132	5	1,083	5,182	1,159	4.8	1	400
775131	9	2,734	11,647	4,225	4.3	1	3,179
775136	9	4,757	25,055	1,499	5.3	3	2,583
785102	10	8,221	34,409	3,467	4.2	2	3,612
785103	4	1,096	4,764	354	4.3	3	126
785131	19	26,793	113,406	4,548	4.2	6	13,926
785134	6	8,148	33,312	1,078	4.1	8	2,394
785135	9	22,996	94,152	2,871	4.1	8	5,931
795101	5	813	3,592	356	4.4	2	146
795102	6	4,739	19,665	1,635	4.1	3	1,635
795131	6	10,821	45,986	1,396	4.2	8	5,091
795132	8	42,658	178,373	4,271	4.2	10	10,273
795200	17	21,009	89,593	2,409	4.3	9	10,450
805103	8	12,848	54,387	850	4.2	15	2,491

-Continued-

Table 5. (Page 2 of 2)

Statistical Area	Number of		Harvest <sup>a,b</sup>	Pots Pulled	Average Weight	CPUE <sup>c</sup>	Dead- loss <sup>b</sup>
	Landings	Crabs <sup>a</sup>					
805132	19	58,140	243,187	4,571	4.2	13	21,823
805201	11	26,278	111,749	4,337	4.3	6	2,043
815131	9	15,061	62,083	1,177	4.1	13	719
815132	9	13,036	53,230	988	4.1	13	366
825132	4	663	3,029	336	4.6	2	90
825201	15	22,951	106,179	3,969	4.6	6	8,968
825202	6	1,205	5,313	275	4.4	4	680
835130	12	7,125	31,887	1,725	4.5	4	4,049
835200	21	60,760	278,234	13,901	4.6	4	28,935
845130	12	21,254	91,319	5,667	4.3	4	5,220
845202	22	63,809	283,256	12,921	4.4	5	24,810
855200	9	9,725	40,158	2,177	4.1	4	4,739
855231	8	18,220	76,622	2,797	4.2	7	12,961
Others <sup>a</sup>	47	62,573	290,496	36,233	4.6	2	39,498
TOTAL	139	1,134,270	4,896,911	226,463	4.1	5	338,223

<sup>a</sup>Deadloss included.<sup>b</sup>In Pounds.<sup>c</sup>Defined as catch per pot pull.<sup>d</sup>28 statistical areas.

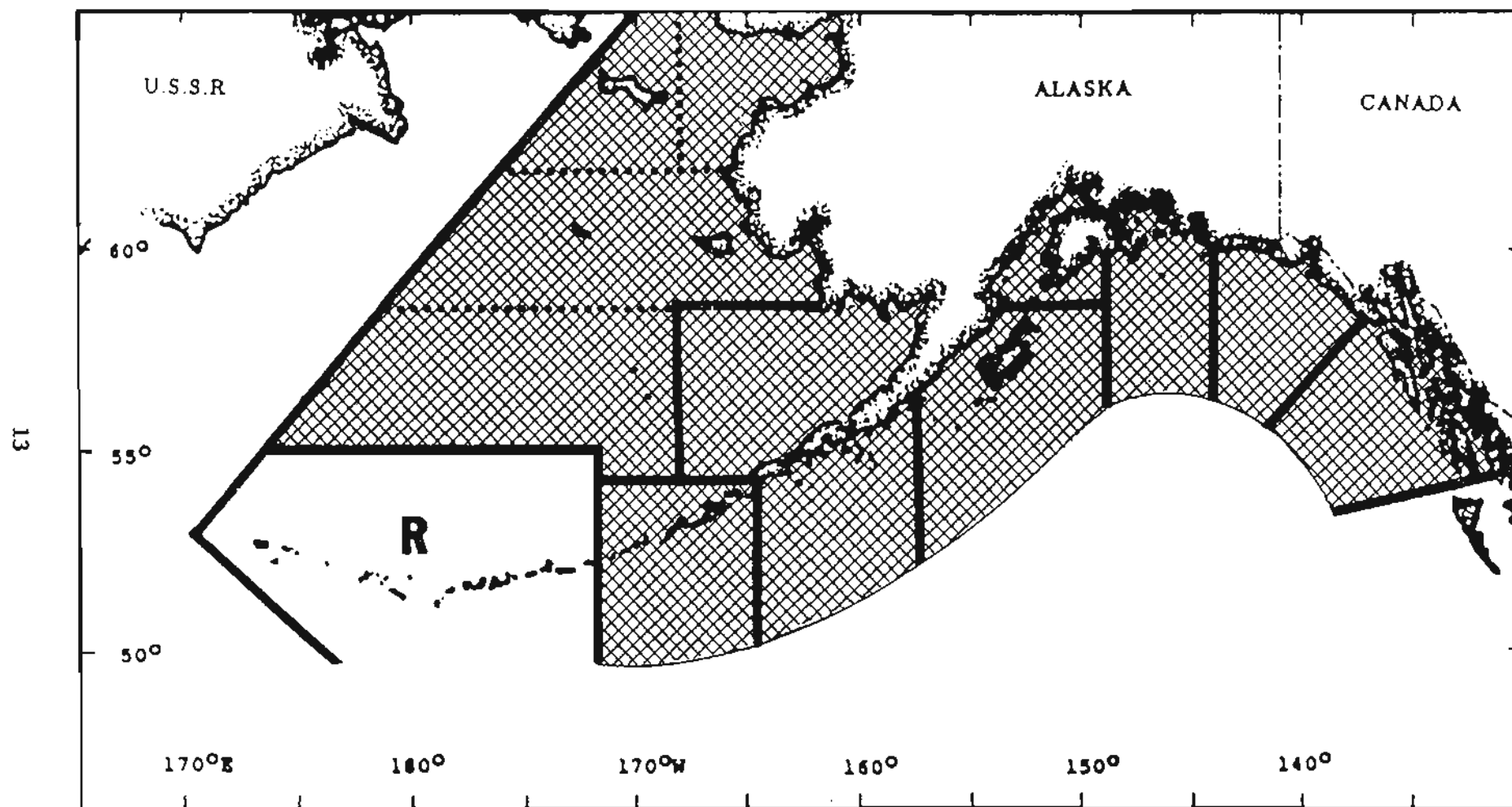


Figure 1. Adak king crab management area "R".

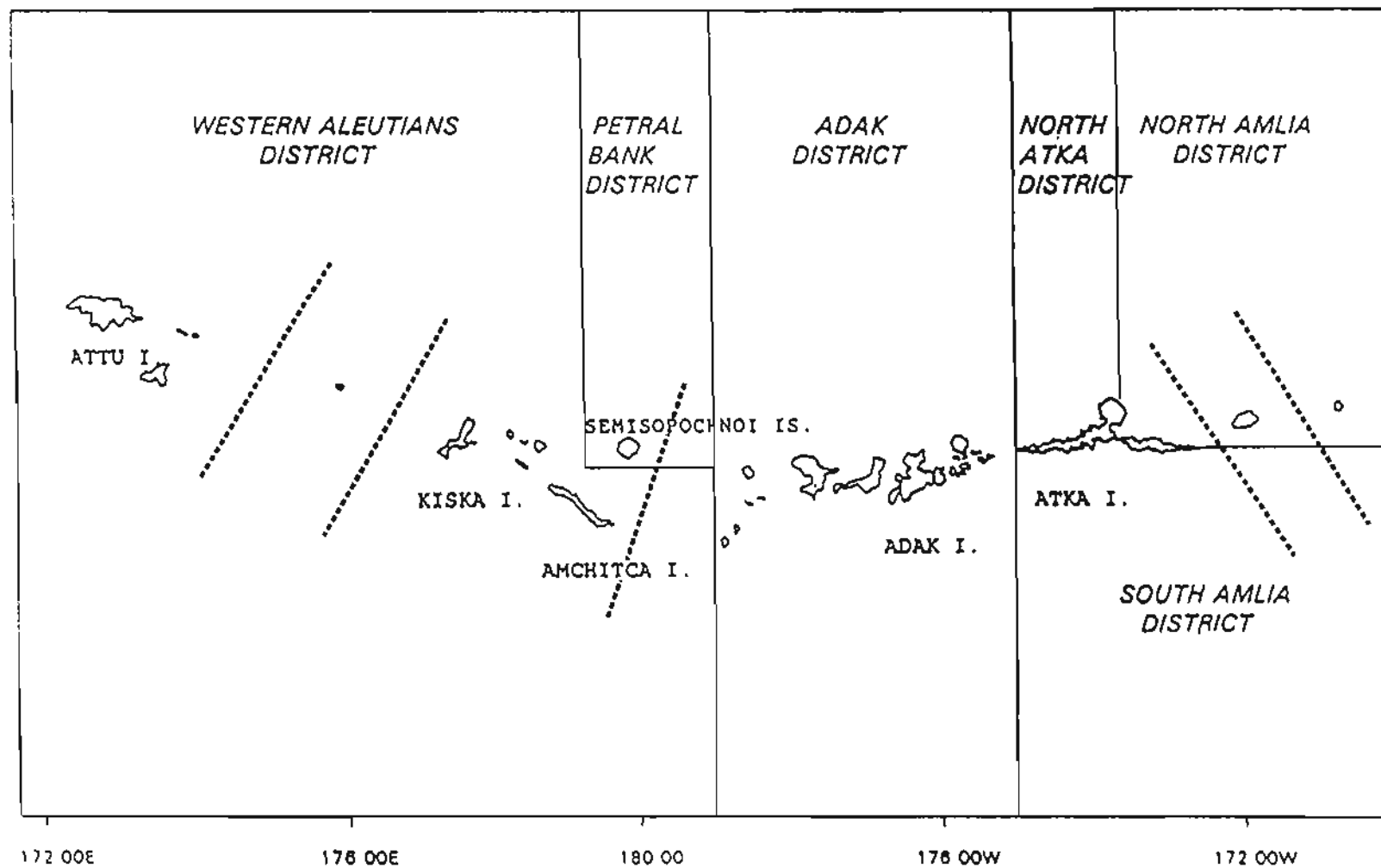


Figure 2. Districts of the Adak king crab management area.



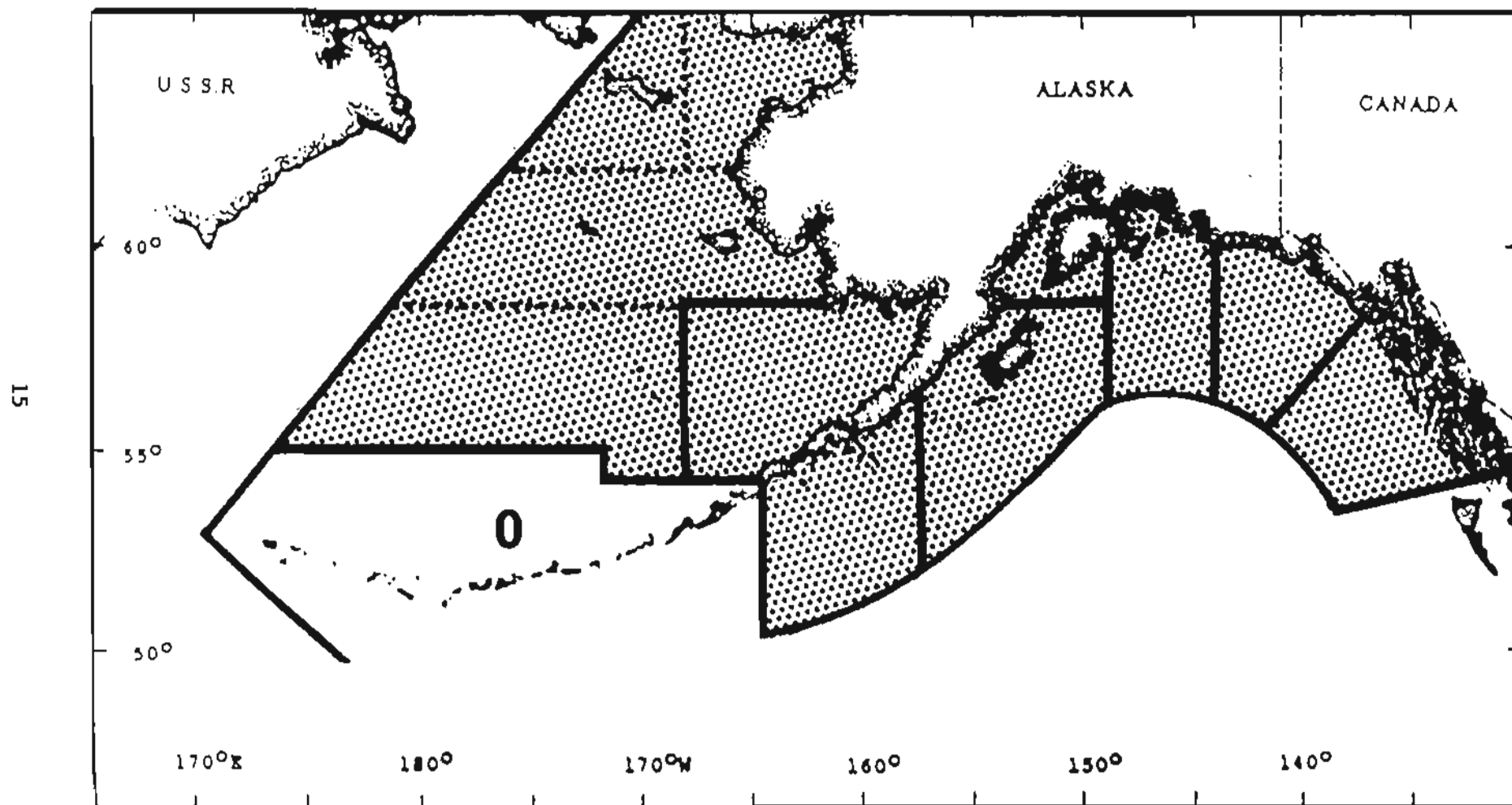


Figure 3. Aleutian Islands king crab management area "O".

Table 4. Historic Adak brown king crab economic performance, 1980/81-1995/96.

Year	Season	Number of			Number of Pots		Value		Season Length	
	Total <sup>a</sup>	Vessels <sup>b</sup>	CP's	Landings	Registered <sup>c</sup>	Pulled	Exvessel	Total <sup>d</sup>	Days	Dates
1980/81	0.05	4	N/A	4	581	700	\$ 0.90	\$0.05	(72)	01/15-3/28
1981/82	1.2	14	N/A	76	2,647	24,627	\$ 2.06	\$ 2.5	(227)	11/01-6/15
1982/83	7.8	99	N/A	501	13,111	150,103	\$ 3.01	\$23.5	(166)	11/01-4/15
1983/84	8.0	157	N/A	1,002	17,406	226,798	\$ 2.92	\$23.4	(157)	11/10-4/15
1984/85	3.1	38	N/A	85	5,270	64,777	\$ 2.00	\$ 6.2	(240)	11/10-7/08
1985/86	11.1	49	N/A	386	7,057	202,401	\$ 2.50	\$27.8	(288)	11/01-8/15
1986/87	12.5	62	N/A	325	12,958	392,185	\$ 3.00	\$37.5	(288)	11/01-8/15
1987/88	7.8	46	N/A	386	10,687	267,705	\$ 3.00	\$23.4	(289)	11/01-8/15
1988/89	9.0	74	13	455	23,627	280,732	\$ 3.20	\$28.8	(288)	11/01-8/15
1989/90	10.1	64	15	505	14,724	324,153	\$ 3.00	\$30.3	(288)	11/01-8/15
1990/91	5.3	13	6	167	7,380	160,960	\$ 3.00	\$15.9	(288)	11/01-8/15
1991/92	6.1	16	7	206	7,635 <sup>e</sup>	192,949	\$ 2.50	\$15.2	(289)	11/01-8/15
1992/93	4.9	18	4	130	8,236 <sup>e</sup>	165,503	\$ 2.05	\$10.1	(288)	11/01-8/15
1993/94	4.6	21	1	147	11,970	212,164	\$ 2.50	\$11.2	(288)	11/01-8/15
1994/95	6.1	34	2	247	15,604	319,006	\$ 3.33	\$20.3	(288)	11/01-8/15
1995/96	4.6	25	1	139	14,213	226,463	\$ 2.10	\$ 9.5	(288)	11/01-8/15

<sup>a</sup>Millions of pounds, deadloss not included.<sup>b</sup>Includes catcher-processors.<sup>c</sup>No separate registration from red king crab.<sup>d</sup>Millions of dollars.<sup>e</sup>Gear directed fishing on brown king crab.

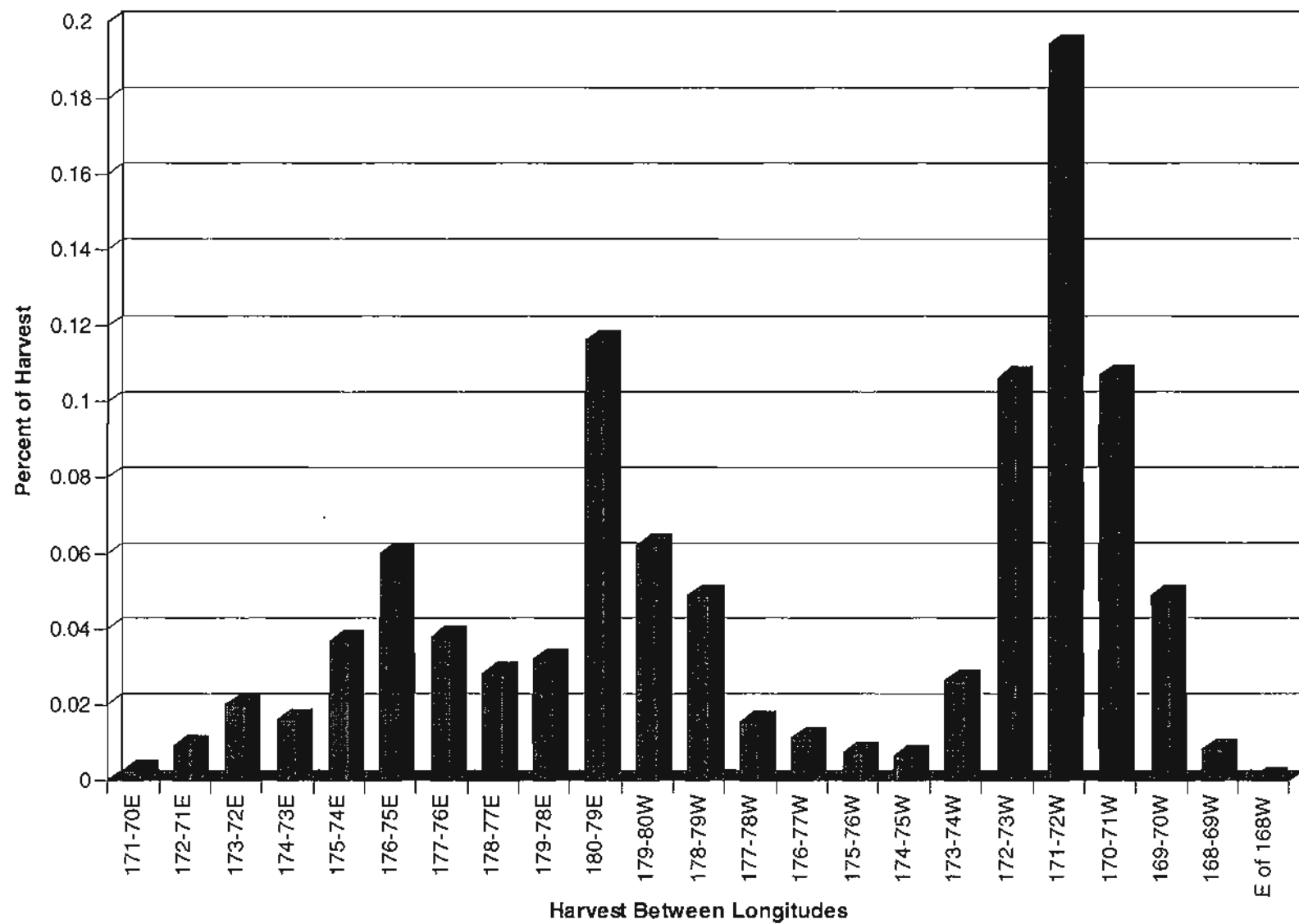


Figure 4. Aleutian Islands cumulative brown king crab harvest between longitudes, 1982 to 1994.

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